

Abstract of the Disclosure

A wavelength converter for converting wavelength of a signal beam combined to a pump beam. The wavelength converter comprises a mode converting region for converting mode of the pump beam; a direction combining region for combining the signal beam to the pump beam; and wavelength converting region for converting the wavelength of the signal beam combined to the pump beam. The mode converting region and the wavelength converting region are formed as integrated by nonlinear polymeric material to construct a polymeric waveguide extended along propagation direction. The wavelength converting region includes the nonlinear polymer poled to a predetermined direction. According to the present invention, a DFG device, a cascade wavelength converting device, and second harmonic generation device of higher energy converting efficiency can be developed.